

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

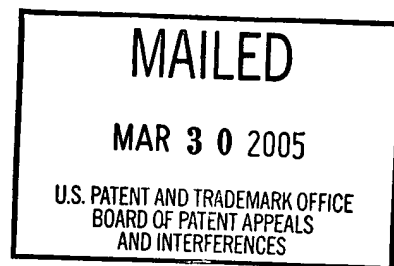
## UNITED STATES PATENT AND TRADEMARK OFFICE

### BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte NICOLAAS M.J. VERMEULIN, CHRISTINE L. O'DAY,  
HEATHER K. WEBB, MARK R. BURNS, and DONALD E. BERGSTROM

Appeal No. 2004-2357  
Application No. 09/713,512

ON BRIEF<sup>1</sup>



Before ELLIS, ADAMS, and GRIMES, Administrative Patent Judges.

ADAMS, Administrative Patent Judge.

#### DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 36-61, 63-77 and 88-95, which are all the claims pending in the application.

Claims 36-39 are illustrative of the subject matter on appeal and are reproduced below:

36. A polyamine derivative, or salt thereof, wherein said derivative has the formula  $R_1-X-R_2$ ,

wherein  $R_1-X-$  is of the formula  $R-NH-CR'R''-CO-$ ,

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<sup>1</sup> Appellants waived their request for oral hearing. Paper received November 24, 2004. Accordingly, we considered this appeal on Brief.

wherein  $\text{-NH-CR'R''-CO-}$  is a D- or L-form of valine, asparagine, or glutamine, or the D- form of lysine or arginine;

wherein  $R''$  is H,  $\text{CH}_3$ ,  $\text{CH}_2\text{CH}_3$ , or  $\text{CHF}_2$ <sup>[2]</sup>;

wherein R is H or a head group selected from the group consisting of a straight or branched C1-10 aliphatic, alicyclic, single or multiring aromatic, single or multiring aryl substituted aliphatic, aliphatic-substituted single or multiring aromatic, a single or multiring heterocyclic, a single or multiring heterocyclic-substituted aliphatic and an aliphatic-substituted aromatic; and

wherein  $R_2$  is a polyamine.

37. The derivative of claim 36 wherein R is H.

38. The derivative of claim 37 wherein  $\text{-NH-CR'R''-CO-}$  is the D-form of lysine.

39. The derivative of claim 38 wherein  $R_2$  is spermine.

The references relied upon by the examiner are:

Cherksey et al. (Cherksey)

WO 91/00853

Jan. 24, 1991

### GROUND OF REJECTION

Claims 36-41, 44-52, 60 and 61 stand rejected under 35 U.S.C. § 103 as obvious over Cherksey.<sup>3</sup>

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<sup>2</sup> Given that the claim defines the  $\text{-NH-CR'R''-CO-}$  moiety as "a D or L-form of valine, asparagine, or glutamine or the D- form of lysine or arginine," the definition of " $R''$ " as it appears in the claim is unclear. In this regard, we note the definition of the  $\text{-NH-CR'R''-CO-}$  moiety does not include substituted forms of the recited amino acids. Accordingly, prior to any further action on the merits, we encourage the examiner and appellants to work together to clarify this issue.

<sup>3</sup> It appears that the examiner made a typographical error on page 4 of the Answer, by including claims 42, 43, 53-59, 63-77 and 88-95 in the statement of this rejection. In this regard, we note the examiner's statement (Answer, page 3) that appellants' "statement of the issues [on appeal] in the [B]rief is correct." Appellants' statement of the issues on appeal identifies only claims 36-41, 44-52, 60 and 61 as included in this rejection. Brief, page 3. In addition, the Final Rejection (bridging paragraph, pages 2-3, mailed October 22, 2002) included only claims 36-41, 44-52, 60 and 61 as part of this rejection. Accordingly, we have not considered claims 42, 43, 53-59, 63-77 and 88-95 to be part of this rejection.

Claims 36-61, 63-77 and 88-95 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the claims of copending Application No. 09/396,523.

We affirm the rejection under the judicially created doctrine of obviousness-type double patenting. We reverse the rejection under 35 U.S.C. § 103.

### DISCUSSION

#### Obviousness-type Double Patenting:

According to the examiner claims 36-61, 63-77 and 88-95 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the claims of copending Application No. 09/396,523. Answer, page 4. Appellants concede to this ground of rejection and assert (Brief, page 3), this rejection “will be overcome by the filing of a terminal disclaimer ... upon overcoming the remaining rejection in the case.”

Given appellants' response, we summarily affirm the provisional rejection of claims 36-61, 63-77 and 88-95 under the judicially created doctrine of obviousness-type double patenting.

#### Obviousness:

According to the examiner (Answer, page 4), Cherksey teach “lysylspermine on page 19 to be useful as a P channel activator.” As we understand appellants' claimed invention when R is H (see claim 37), -NH-CR'R"-CO- is the D-form of lysine (see claim 38), and R<sub>2</sub> is spermine, the

claimed polyamine derivative reads on lysylspermine, wherein the lysyl moiety is in the D-form. Paragraph 3, of the Weeks declaration<sup>4</sup> asserts "[t]he stereochemistry of the lysyl moiety in the lysylspermine compound [taught by Cherksey] is not disclosed." In this regard, the examiner finds (Answer, page 4), Cherksey "differ[s] from the instant invention in that appellant claims a stereoisomer ... [of Cherksey's lysylspermine]."

To make up for the difference between Cherksey and the claimed invention the examiner appears to rely on a per se rule that a stereoisomer is obvious in view of a disclosure of another stereoisomer in the prior art. According to the examiner (id.), "[i]t would have been prima facie obvious at the time the invention was made to one of ordinary skill in the art to start with the teaching of Cherksey et al., to make appellant's compounds and to expect them to be useful as P channel activators." Further, while the examiner recognizes (id.), "[a]ppellants provide a showing of beneficial results obtained by using a specific stereoisomeric form<sup>[5]</sup>," the examiner simply concludes (id.). "it is expected there will be differences in activity of various stereoisomers in biological systems."

On this record, however, the examiner fails to provide substantial evidence in support of his assertion that it would have been prima facie obvious to a person of ordinary skill in the art to modify Cherksey in a manner that would

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<sup>4</sup> Received July 2, 2002.

<sup>5</sup> See Weeks Declaration, and Brief, page 4.

have led to appellants' claimed invention. In this regard, we point out that the burden is on the examiner to establish a prima facie case of obviousness of the claimed subject matter over prior art references. In re Deuel, 51 F.3d 1552, 1557, 34 USPQ2d 1210, 1214 (Fed. Cir. 1995). Only after that burden is met must the applicant come forward with arguments or evidence in rebuttal. Id. Findings of fact must be supported by a preponderance of the evidence in the record. In re Oetiker, 977 F.2d 1443, 1449, 24USPQ2d 1443, 1447 (Fed. Cir. 1992) (Plager, concurring). A rejection under §103 is proper only when "the PTO establishes that the invention as claimed in the application is obvious over cited prior art, based on the specific comparison of that prior art with claim limitations." In re Ochiai, 71 F.3d 1565, 1572, 37 USPQ2d 1127, 1133 (Fed. Cir. 1995). At best, the examiner appears to have relied on a per se rule that the specific stereoisomers set forth in appellants' claims are obvious in view of Cherksey. To that end, we direct attention to the Federal Court's statement in Ochiai, "reliance on per se rules of obviousness is legally incorrect and must cease."

We recognize, as set forth in In re Deuel, 51 F.3d 1552, 34 USPQ2d 1210 (Fed. Cir. 1995), that a prima facie case of obviousness based on structural similarity may arise if the "[s]tructural relations provide the requisite motivation or suggestion to modify known compounds to obtain new compounds. For example, a prior art compound may suggest its homologs because homologs often have similar properties and therefore chemists of ordinary skill would ordinarily contemplate making them to try to obtain compounds with improved properties." Id. at 1558, 34 USPQ2d at 1214. The court stressed, however, that

“there must be adequate support in the prior art for the...change in structure, in order to complete the PTO's prima facie case and shift the burden of going forward to the applicant.” Id., quoting In re Grabiak, 769 F.2d, 729, 731-32, 226 USPQ 870, 872 (Fed. Cir. 1985). See also In re Payne, 606 F.2d 303, 313, 203 USPQ 245, 254 (CCPA 1979) (“An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a claimed compound, in the expectation that compounds similar in structure will have similar properties.”); In re May, 574 F.2d 1082, 1094, 197 USPQ 601, 611 (CCPA 1978) (“the basis of the prima facie case of obviousness, at least to a major extent, is based on the presumed expectation that compounds which are similar in structure will have similar properties”).

However, as set forth in In re Doyle, 63 USPQ2d 1161, 1162 (Fed. Cir. 2002), footnote omitted,

Like a human hand, a chiral molecule cannot be superimposed on its mirror image, otherwise known as its enantiomer. Altering the relative orientation of the groups bonded to the various chiral centers of a molecule (i.e., creating a different stereoisomer of the compound) can have profound effects on the compound's properties, especially with respect to how the compound interacts with other chiral molecules.

On this record, the examiner admits (Answer, page 4), “there will be differences in activity of various stereoisomers in biological systems.” In this regard, we direct the examiner's attention to paragraphs 4-7 of the Weeks Declaration, which provides evidence that the D- and L- forms of lysylspermine have unexpected differences in tissue accumulation. According to the Weeks Declaration, paragraph 8,

[t]he observed higher tissue concentration of the D-form of lysylspermine has significance for the use of the compound in the inhibition of polyamine transport and/or the inhibition of cell proliferation. Higher tissue concentrations generally permit the use of lower amounts of a compound to achieve the same biological effect in tissue.

The examiner appreciates (Answer, page 4), "[a]ppellants provide a showing of beneficial results obtained by using a specific stereoisomeric form...." However, rather than address the merits of the Weeks Declaration as it may apply to the instant rejection, the examiner simply reasserts his conclusion (Answer, page 4), "it is expected there will be differences in activity of various stereoisomers in biological systems." We find this conclusion insufficient to support the rejection of record. A conclusion of prima facie obviousness, does not end a patentability determination under 35 U.S.C. § 103. As stated in In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986):

If a prima facie case is made in the first instance, and if the applicant comes forward with reasonable rebuttal, whether buttressed by experiment, prior art references, or argument, the entire merits of the matter are to be reweighed. In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984).

Here, appellants provide evidence of unexpected results. Accordingly, the burden was properly shifted to the examiner to explain why this evidence was insufficient to overcome the rejection of record. In our opinion, the examiner has not met his burden.

Accordingly, we reverse the rejection of 36-41, 44-52, 60 and 61 under 35 U.S.C. § 103 as obvious over Cherksey.

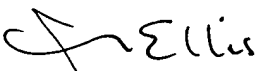
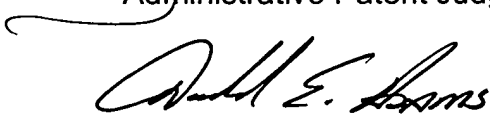

SUMMARY

We affirm the rejection under the judicially created doctrine of obviousness-type double patenting.

We reverse the rejection under 35 U.S.C. § 103.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

	)	
Joan Ellis	)	
Administrative Patent Judge	)	
	)	
Donald E. Adams	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
Eric Grimes	)	
Administrative Patent Judge	)	



Burton A. Amernick  
Connolly, Bove, Lodge & Hutz LLP  
1990 M Street N.W.  
Suite 800  
Washington DC 20036-3425